

TRANSACTIONS OF SOCIETIES.

ART. XIII.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1864. June 1. *On the Proper Designation of the Present Epidemic. (Cerebro-Spinal Meningitis.)*—DR. ALFRED STILLÉ read the following remarks on this subject :—

The different and opposing views which have been taken by Fellows of the College respecting the nature and the appropriate name of the fatal epidemic which has prevailed in this city, and in various other localities, induce me to attempt a more exact determination of both than I was able to do in the few verbal remarks which I made at a former meeting, when reporting a case of the disease which had fallen under my observation.

The scientific nomenclature of diseases is apt to reflect the dominant pathological ideas of the time, while their popular appellations are still more generally derived from the salient symptoms which characterize them. The latter are therefore more constant, in general, than the former. But, as pathological science advances, there is a slow and gradual, but still an uninterrupted, tendency to replace popular by scientific names—names which express the essential constitution of diseases, and their relation, therefore, to others which partake more or less of the same nature, and require, in a greater or less degree, the same methods of treatment. When, therefore, a disease is met with which at first appears to be unlike others, it is natural and proper provisionally to distinguish it by a name representing its most striking and constant phenomenon; but as soon as its nature is determined, and its analogies established, it is equally natural and proper to bestow upon it a title which shall express its affiliation with affections already belonging to the nosological family. Thus, “black tongue” becomes “epidemic erysipelas;” “black leg” is found to be a form of “scurvy;” “summer complaint” is “cholera infantum;” “child-crowing” is “laryngismus stridulus;” and scores, or even hundreds, of similar examples might be cited, if they would not readily occur to every educated physician.

There are diseases *totius substantiæ*, which, from the rapidity with which they invade the whole economy, are concluded, upon good grounds, to originate in the blood, and which more or less confine their effects to functional disorders generated by a vitiated condition of the circulating fluid. There are others which, originating in the same manner, occasion certain special lesions of the solids. There are others, again, which commence by local disorders, and in their progress implicate the whole organism in a greater or less degree. For the last mentioned, a title expressive of their local origin is universally admitted to be appropriate. For the second, it is usual to select a name which shall denote their double characteristic of being a general disease with a specific anatomical character. But in the case of diseases without anatomical localization, a term expressive of their characteristic symptomatic expression forms the nearest approach to an accurate designation.

Typhus fever belongs to the last category. It is the peculiar product of a vitiated state of the blood, the child of famine and decay—of causes, in a word, which tend to prevent the proper renewal of the organic elements of the body, and to cause their retention within the economy as effete organic,

and therefore poisonous, matters. It occasions no local lesion, but affects the totality of the organs upon whose action, according to a certain manner, life depends. The name, therefore, which it most appropriately bears, denotes its most characteristic phenomenon, the typhous quality of all its symptoms.

Typhoid fever includes other elements. In addition to a greater or less degree of those which belong to typhus, it presents symptoms of intestinal disease, and corresponding lesions. At one time, it will be remembered, these lesions were held to be the source of the local and general phenomena of the disease, and it was consequently termed entero-mesenteritis. But further observation showed that a fatal termination of an attack might occur before any ulceration of Peyer's glands had taken place, and consequently that this ulceration was a consequence of the essential morbid process of the disease, and not its effect. The theory that the symptoms, as a whole, originated in the intestinal lesion could no longer be supported; and more attention having been directed to the *quality* of the symptoms themselves, which were evidently typhoidal and febrile, the affection acquired the name of typhoid fever. But this step was towards the opposite extreme, for the new name had no reference to the anatomical character of the disease, the alteration of the mesenteric and intestinal glands. A further modification of the nomenclature was therefore demanded. As all my hearers know very well, Dr. Wood proposed the term enteric fever, and its general adoption at home and abroad proves that it expresses better than any former denomination the peculiar double character of the disease. That it is open to criticism, I presume its distinguished author will concede; but it is very certain that it possesses in a high degree the merit of describing the affection to which it is applied—its essential lesion and its prominent symptom. In this, as in all diseases which present a definite anatomical character, the lesion represents the body, or material element of the disease, while the predominant symptom typifies its immaterial and vital manifestation. The two together constitute the most perfect image we can conceive of the disease in its totality.

These remarks will serve to illustrate the principles upon which I think the epidemic disease of the winters of 1863 and 1864 should be named. If it possesses a distinct anatomical character, let that be the ground of its title; if it does not present such a lesion, but, in its stead, a constant symptom, let that symptom confer its name upon the affection. Or if any lesion and symptom can be found in constant union, let them jointly be used to designate it.

A year ago a paper was read, by a Fellow of the College, in which it was stated that the disease was unknown in Europe; that the only account of it to be found is an imperfect description given of it by a number of physicians of New England, between 1807 and 1816; that "Dr. Gallup gave the name of spotted fever to it;" and that "this designation should be retained, inasmuch as it is drawn from one of the most characteristic symptoms of a disorder which offers no peculiar anatomical lesions." I feel very doubtful whether my excellent friend, the author of that paper, would now repeat the statements which he then made, evidently without having consulted the most important original histories of the New England epidemics, and when, as the disease was entirely novel to himself, his knowledge of it had not been thoroughly matured. I propose, by a reference to the published records of its history, to show, 1st, that the disease is not correctly named *spotted fever*; and 2d, that its proper title is *epidemic meningitis*, or, if it be preferred, *cerebro-spinal meningitis*. An enumeration of proofs may not present the interest of a discussion in which affirmative and

negative arguments are debated, but, where the question to be decided relates to opinions which have passed into judgments, it is perhaps the shortest and most conclusive method. I shall proceed, then, first, to show by citations from authors who wrote upon the first epidemic in the United States, that they either testify directly against the application of the term "spotted fever" to this disease, or else show that spots were neither an invariable, nor, in some epidemics, even a frequent symptom.

Dr. Nathan Strong, Jr., says "these spots, which in 1806-7 marked almost every case, in 1808-9 were rarely observed." The spots, he also remarks, "gave rise to the name *petechial* or *spotted fever*, which has been very generally, though very improperly, applied to the disease."

Dr. North, referring to petechiæ, remarks: "This symptom does not occur so often as the name which this disease has obtained would lead one to expect. . . . They are by no means a constant or a frequent symptom." (p. 129.) Dr. Lyman, after describing the mulberry rash, petechiæ, and vibices, adds: "There are, however, some, even among the fatal cases, without any such appearances on the skin." Dr. Woodward, describing a second occurrence of the epidemic, remarks: "An eruption on the skin so seldom appeared, that it could no longer be considered a characteristic symptom of the disease." In the report of Drs. Haskell, Spooner, and Holmes it is stated: "But neither the spots nor the eruptions are inseparably connected with this disease." Dr. Fiske says: "An eruption, which the name of this disease seems to imply, is not a constant attendant upon it." Dr. Arnell testifies that the spots "are not always a constant attendant upon the disease." All of this testimony is contained in the valuable little volume published by Dr. North in 1811.

An earlier treatise, although first published in 1813, is the report to the Massachusetts Medical Society, by a committee consisting of physicians no less eminent than Thomas Welsh, James Jackson, and John C. Warren. They devote a section of their report to discussing "the name and character of the disease," and introduce it with the following words: "This disease has been called spotted or petechial fever. The name has been considered improper by most medical men who have had occasion to remark upon the subject." Among their conclusions from the discussion is this one: "In a very considerable proportion of cases there are not discovered either spots or eruptions. Indeed, if we except some slight appearances on the inside of the elbow-joint, and in similar places, which very probably are to be attributed to sweating, *such spots and eruptions are comparatively rare.*" (p. 158.) In their description of the symptoms of the affection, they also say: "It is not easy to determine in how large a proportion of subjects the skin is affected with spots and eruptions. Under the observations of some gentlemen they have been very rare. One remarks that in eighty cases, among which twenty were very severe, he had seen only four instances in which spots or eruptions of any kind had taken place; and he adds that these had not been the worst cases under his care." (p. 132.)

A scarcely less meritorious paper is entitled "Remarks on the Spotted Fever, as it prevailed in Hartford, Conn., in the Year 1809. By Dr. Henry Fish." It is equally emphatic regarding the inconstancy of the symptom. "Petechiæ, or livid spots, from which spotted fever has derived its name, *did not occur in one case of this epidemic* before death; after it, they were noticed in several." (p. 32.)

A writer in the *New England Journal*, for 1814, has the following remarks: "Considerable misapprehension has arisen from the very name of 'spotted fever;' for though the word *spotted* is a fair equivalent to the word

petechial, . . . yet spots of a nature to *attract notice* are often wanting in *five cases out of six*, and sometimes in a larger proportion. Hence well-informed practitioners of all descriptions are dissatisfied with the name." (p. 167.) Dr. Gallup, so far from having given this name to the disease, and writing after it had become familiar, says distinctly: "The eruption, which has given a name to this disease, is not a constant attendant. . . . The proportion of cases which had distinct eruptions may be estimated at one-sixth." (p. 232.) Unless upon the etymological principle in *lucus a non lucendo*, it is difficult to comprehend the propriety of calling a disease *spotted fever* which, in a large proportion of cases, presents no spots at all, and which, furthermore, is less a fever than an inflammation, as I shall endeavour presently to demonstrate. The citations which have been made suffice to prove that they who had the best opportunities for witnessing the earlier ravages of the disease in this country, and of becoming acquainted with all its phases, pronounced "spotted fever" a misnomer. It is not less so now than it was half a century ago.

Many years passed away and no return of the epidemic was recorded. Meanwhile, thanks to the publications of Dr. Gerhard and other physicians, the two great idiopathic fevers were distinguished from one another, and established as the only two continued fevers of a grave type occurring in northern latitudes. Meanwhile, too, pathological anatomy became more generally cultivated, and the spinal marrow, whose functions had been previously ignored or unknown, was admitted to be an organ, and not a subordinate one either, but an organ to which the brain itself is, after all, a mere appendage. From 1842 to 1850 the disease we are considering prevailed in the southwestern States. It was there carefully studied by not a few physicians, and although, "in numerous instances," "petechiæ and ecchymoses" were observed, and also "an eruption resembling nettle rash," and "an efflorescence not unlike that of scarlatina," no one appears to have called it "spotted fever."

Finally, the disease having again made its appearance for a short time in Massachusetts and New York in 1850-51, the present epidemic took its rise in the western and central parts of the last named State in 1857, and has since travelled chiefly in a southwardly direction as far, at least, as North Carolina. In this extensive and disastrous progress it has been carefully watched by a large number of physicians, and, so far as I can learn, none have described it as "spotted fever" in any published writing, except Dr. Gerhard, with some other physicians of this city, and Surgeon Wales, U. S. N., stationed at Newport, R. I.

From these notices, although very brief, it must, I think, be concluded that spots of no description, petechial, rubeolous, roseolous, or other can be regarded as characteristic of the disease, and that consequently a name derived from so inconstant a symptom must be regarded as inappropriate. As for the particular name which it is sought to attach to this affection, it is already appropriated by another in which the spots really are a characteristic symptom. I refer to typhus fever, a spotted fever in the true and literal sense of the term, and which more than a century ago received that name in England from several of its historians. In Germany, also, it was known by a title which means exactly *spotted fever* (Flecken Fieber). Petechial and ecchymotic spots do not belong essentially and exclusively to any disease, but to a particular condition of the blood, and perhaps of the solids also, which may be present in almost every affection involving the whole system, as in typhoid fever, the eruptive fevers, yellow fever, scurvy, purpura, and many others. The disease which we are considering

would be singular indeed if it ran so remarkable a course and presented such peculiar symptoms as it usually does, without possessing some element better fitted to giving it a name than an eruption which does not exist in half the cases. I proceed, therefore, to inquire what symptoms and what lesions characterize it so frequently as to entitle them to confer a name upon it, and I again resort to the historical documents which have been already cited, requesting particular attention to the fact that at the very time when the disease continued to be called "spotted fever" for convenience sake, its scientific position as a cerebro-spinal meningitis was perfectly well understood.

Dr. North mentions "among the more unusual symptoms of the fever," a "dilatation, and in some a contraction of the pupils of the eyes; blindness in some, in others double or treble vision; a drawing back of the head, with a *kind of clonic spasm of the muscles of the neck.*" President Fitch speaks of "pain and rigidity of the muscles of the neck often, and *the head is in many instances inclined backwards.*" Dr. Woodward, also, describes "*the head drawn back with spasm.*" In the Report to the Massachusetts Medical Society before alluded to, the following symptoms are particularly noticed: "Numbness or total insensibility and paralysis in a larger or smaller portion of the body, which occur often in the first stage of the disease, and continue through its whole course, and even after other symptoms have subsided; . . . and spasms which frequently occur, and shift suddenly in the same manner as the pain does from part to part; sometimes resembling hysteric spasms, *sometimes occasioning the head to be drawn back as in opisthotonos.*" Dr. Fish, of Hartford, describes anæsthesia and paralysis of various parts, blindness, loss of the sense of taste, spasmodic deglutition and paralysis of the pharynx. Dr. Gallup says, "Convulsions or spasms sometimes usher in the disease. That form of tetanus called opisthotonos comes on sometimes towards the close of severe cases; it denotes an alarming case, but is not a fatal symptom."

Finally, Dr. Miner, describing a case which occurred in 1816, uses the following language: "He was as stupid as a block, unconscious of any impression on either of the senses, and so convulsed that it required three or four men to hold him on his bed. His eyes were open, and rolled back, so as to hide the coloured part, *and his teeth were as firmly clenched as in locked-jaw.*" It is added: "His face, arms, legs, and body were literally covered with spots," &c. In his remarks upon this case, Dr. Miner says: "*Spotted fever appears to have its seat and throne in the brain,* to belong nosologically to the passive Phlegmasiæ."

It is evident, therefore, that long before the affection ceased to be called "spotted fever," those of its symptoms which denote serious disease of the central organs of the nervous system had been observed, described, and properly appreciated. It is of course unnecessary to cite in detail analogous illustrations after it had been recognized as a meningitis. Dr. Drake has furnished material for this in the chapter of his work on *The Principal Diseases of the Interior Valley of North America*, which treats of "epidemic cerebro-spinal meningitis" as it prevailed in that region from 1842 to 1850.¹ All the reporters of the existing epidemic have described the

¹ It is proper, also, to direct attention to the history of an epidemic of cerebro-spinal meningitis which occurred in 1849 in the towns of Milbury and Sutton, Mass., and which was described as such by Dr. Joseph Sargent, of Worcester. After relating a number of cases, all of which presented marked cerebro-spinal symptoms, and a number of them a petechial eruption, and after comparing the epidemic he had witnessed with that of 1810 to 1814, Dr. Sargent remarks: "The

same characteristic nervous and spasmodic phenomena (paralysis and opisthotonos), as occurring more or less frequently, and in a greater or less degree, with the single exception of my friend who first presented an account of the disease to this college. Even Surg. Wales, while reporting the Newport epidemic as "spotted fever," does not fail to point out the special implication of the nervous centres, by saying, "The limbs seem paralyzed and are numb, and in some cases even insensible; there is deafness, dimness of sight, or even complete loss of vision. A few have convulsions and opisthotonos." There is, then, no doubt that among the symptoms of the present epidemic, those which characterize meningitis, especially of the base of the brain and of the spinal marrow, were prominent.

Finally, let us inquire what lesions of the nervous centres are found after death from this disease, and in what relation they stand to the symptoms which have been described. The earliest record upon the subject is that of Danielson and Mann in 1806, who, in two out of five dissections, found adhesions of the cerebral membranes, or "a fluid resembling pus, both over the cerebrum and the cerebellum." In these cases the encephalic veins were "turgid with blood," as they also were in the three other cases which were regarded as not presenting evidences of inflammation. But the Report of Drs. Welsh, Jackson, and Warren leaves little to be desired so far as the lesions of the brain are concerned. They describe the copious discharge of blood from the turgid veins of the dura mater when this membrane is incised, and the equally profuse flow of reddish serum from the cavity of the arachnoid. And they, moreover, make a very important distinction between the appearances in two classes of cases; in those, namely, which are fatal within the space of twelve hours from the invasion, and those which perish at a later period; in the former there is only excessive congestion of the large bloodvessels, but in the latter there are other lesions which, they say, "are more conspicuous in proportion to the duration of the disease." "The tunica arachnoides," they proceed to observe, "and the pia mater are remarkably altered in appearance by the effusion of an opaque substance between them, which may be called coagulated lymph, or semi-purulent lymph. This substance is frequently of the yellowish colour of pus, with a consistence between the tenacity of lymph and the fluidity of pus. At other times we see it possessed of the aspect of well characterized lymph. . . . The membranes at the basis present the same appearances as at the vertex of the brain." In another place (p. 159), they say that in severe cases of the disease there is *always* inflammation within the cranium. This extract is sufficient, I presume, to prove beyond doubt or cavil that the "spotted fever" of 1809 was a meningitis. Had the spinal marrow at that time arrived at the dignity of being considered an organ, it would doubtless have been examined. As it was, the condition of this nervous centre remained unknown until the recurrence of the epidemic between 1840 and 1850. The pathological anatomy of the disease was at that time studied very carefully by Dr. Ames, of Montgomery, Ala., and so far as appears, by him alone. It would occupy too much time to quote his very interesting

spots play but a very subordinate part in all the histories of the epidemic of thirty years ago, that I have seen, and were by no means constant. They gave the name to the epidemic only because its lesion was not known, and the name was picturesque. The name also made, perhaps, a part of its terror, and designated a kind of personification. So natural is the superstition which takes fright at severe disease which is 'unknown;' and which also loses half its horror of the same disease when the knife of the anatomist has fixed its locality, even though this do not diminish its danger—a tacit recognition of confidence in science and medical skill."—(*Am. Jour. of Med. Sci.*, July, 1849, p. 40.)

description of the lesions which he found; suffice it to say that, as regards the brain, they were the same precisely as had been observed in Massachusetts thirty years before. To this, however, it is added: "So far as the spinal cord was examined, the lesions, generally speaking, were the same as those met with in the brain in the same cases. The intense vascularity of the pia mater was always present, but the lympho-purulent deposit and the injection of the cord proper were less common than in the brain. The spine was opened in its whole length in one case only." In this case, however, the dura mater is stated to have been thickened, its arachnoid lining divested of its polish; the cervical portions of the cord softened, especially in the white substance, while the converse condition prevailed in the lumbar portion, where more of the gray substance was altered. "A deposit of lympho-purulent matter was found chiefly about the roots of the anterior spinal nerves."

If we come now to the existing epidemic, the testimony is invariably the same wherever dissections have been made. Thus in 1858, at Churchill, N. Y., the post-mortem appearances were observed by Dr. Craig in no less than six cases which proved fatal in less than forty-eight hours from the commencement of the attack: "In all of them, on removing the calvarium, there was observed a turgid condition of the venous system. On removing the coverings of the brain, lymph of a yellowish and greenish hue was detected in the upper sulci of that organ; and in all there were increased quantities of lymph with sero-purulent effusion at the base of the brain and extending down the whole length of the spinal cord. The choroid plexus was also very much engorged, and more or less serous effusion in the ventricles. We also found softening of the base of the brain and upper portions of the spinal cord."

The most complete history of the anatomical characters of the existing epidemic is contained in the Hospital Notes and Memoranda of Dr. J. Baxter Upham, Surgeon in charge of Stanley General Hospital at Newbern, N. C. He dwells, as did the original reporters of the New England epidemic, upon the different grades of the alteration according to the duration of the attack. When death took place within two or three days there were opalescence of the pia mater, increased vascularity of the membranes of the brain and spinal cord, a large effusion of serum mixed with flocculi of lymph, and "an exudation of thick, yellowish, apparently semi-organized lymph on the base of the brain and the medulla oblongata." When the attack had been of one or more weeks' duration, "the deposits on the brain were usually more marked, predominating at its base, around the pons Varolii and in the sulci of the cerebrum and cerebellum, covering the surface of the oblongata, and extending down to the spinal cord, sheathing it, in some cases, throughout its entire length." It is unnecessary to quote more of Dr. Upham's accurate and interesting description. It is enough that what has been read corroborates all the previous histories of the anatomical lesions of the disease, and tallies in every point with the original account of them furnished by the Committee of the Massachusetts Medical Society.

I conclude, therefore, that the description of the disease given by the physicians of New England between 1807 and 1816 was not an imperfect one; that the name of *spotted fever* was not conferred upon it by Dr. Gallup; that this designation should not be retained, inasmuch as spots are not the most characteristic symptom of the affection; and, finally, that it does offer a peculiar anatomical lesion which entitles it to be designated as *meningitis* with the prefix *epidemic* or *typhoid*, as it has been called in Europe by the best authorities ever since its pathological anatomy was investigated and its type understood.